CHAPTER 1 - INTRODUCTION

1.1 PURPOSE

The Tennessee Valley Authority (TVA), Tennessee Duck River Development Agency (DRDA), Tennessee Department of Environment and Conservation (TDEC), U.S. Army Corps of Engineers (USACE), and U.S. Fish and Wildlife Service (USFWS) have cooperated to prepare this analysis and Environmental Impact Statement (EIS). TVA is the lead agency in preparing this document.

This analysis and EIS document has three related purposes. The first purpose is to evaluate the need for water in the upper Duck River watershed over a 50-year planning period (to the year 2050). A second purpose is to identify potential ways to meet any identified water need for part or all of this river basin. The third purpose is to evaluate the environmental and socioeconomic impacts of several possible ways to meet the future water needs for communities within this river basin. As a whole, this document is intended to present facts and figures about the future demand for water in the upper Duck River basin and evaluations of several possible ways of meeting the projected needs.

The EIS evaluation has been conducted at a rather general (programmatic) level because specific locations and facility designs have not been proposed for any of the possible water supply projects and each project would affect only a relatively small part of a wide geographic area. In addition, several of the alternatives would not have to be built for a number of years. A programmatic review such as this can identify the types of environmental and socioeconomic issues which could be affected by each of the alternatives and the relative amount of impact each alternative could have. This level of review can help agencies and the public make basic decisions about the kind of project which should be built. Such a review also can serve as an early warning about the important environmental and socioeconomic issues which should be considered and addressed during the design and detailed review of a project intended to meet the overall need.

TVA and many of the same cooperating agencies have recently completed a related EIS on alternative uses of the land that TVA acquired to be part of Columbia Dam and Reservoir. The final Land Use EIS was issued in April 1999 (TVA, 1999). Work on both of these EIS documents is being conducted in accordance with NEPA, Council of Environmental Quality regulations, and TVA implementing procedures.

1.2. COLUMBIA PROJECT HISTORY

Much of the pertinent history of the Columbia Dam Project is presented in the Land Use EIS (TVA, 1999). The following extract of that history is focused on the water supply aspects.

Duck River Project

In 1964, the leaders in Maury, Marshall, Bedford, and Coffee Counties (Figure 1) organized the Upper Duck River Development Association to request assistance under the TVA tributary area development program. Local leaders also saw the need to develop an organization with broad legal powers which had official recognition in the governmental structure of the area. In response to that need, the Tennessee Legislature created the Tennessee Upper Duck River Development Agency (later expanded to become the Duck River Development Agency - DRDA) in March 1965 and gave it broad responsibilities for formulating and carrying out plans and programs for improving the economy of the area.

In 1966, DRDA proposed the development of a water supply grid system to serve the four-county area. It included plans for interconnecting the five major cities (Columbia, Lewisburg, Shelbyville, Tullahoma, and Manchester) for greater economy, to aid industries requiring treated water, and to supply water to small communities and rural areas of the four counties. Federal grants, supplemented by municipal bonds, were obtained to construct the grid system which is now partially completed. With the local organizations concentrating on the water grid system and other concerns, TVA was requested to investigate water resource development.

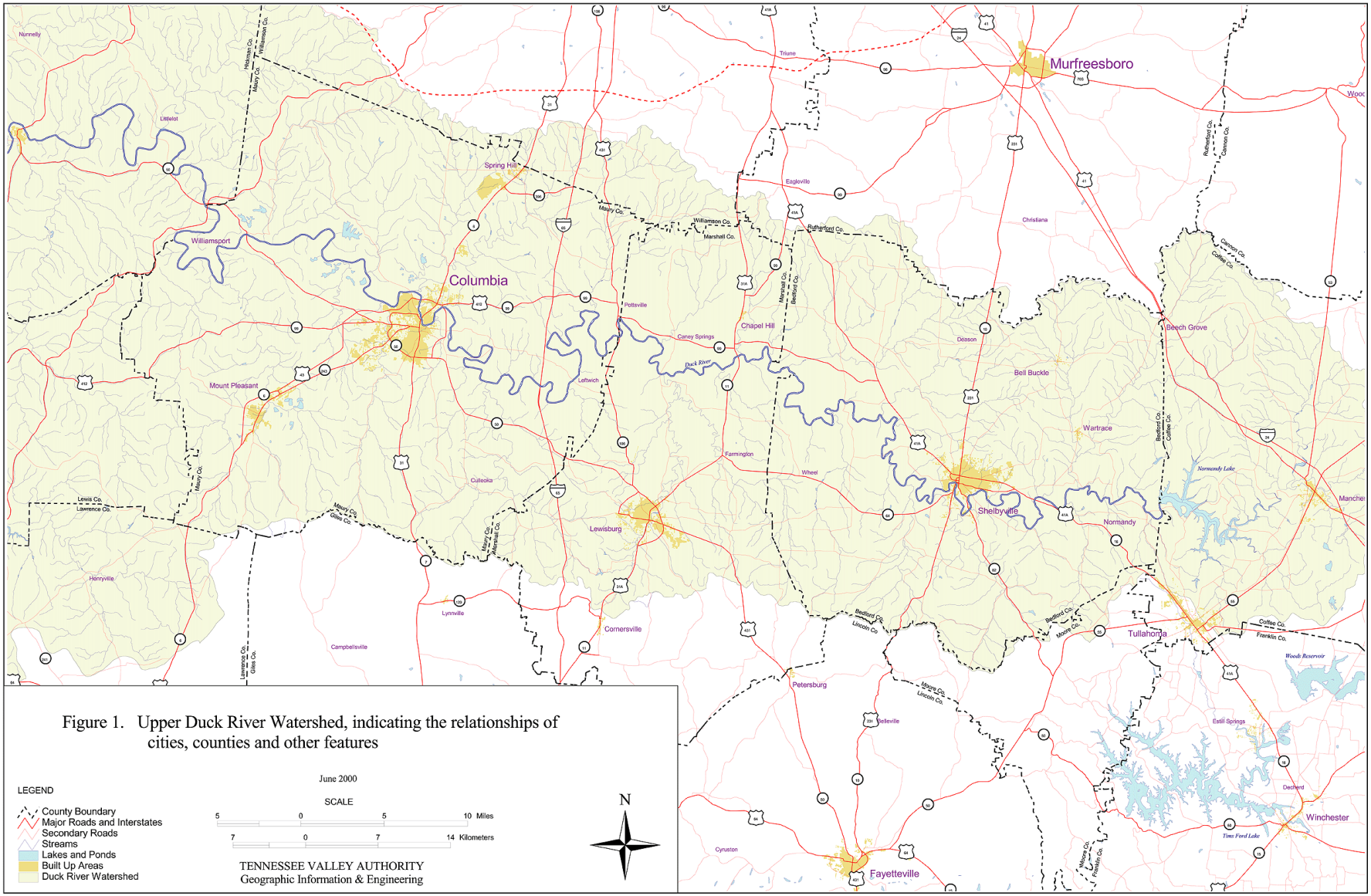

Figure 1. Upper Duck River Watershed, indicating the relationships of cities, counties and other features

TVA determined that multipurpose reservoir development on the main stem of the Duck River offered the best potential. A reconnaissance study in 1965 identified three dam sites on the Duck River which, if developed, could control the river and provide new opportunities for recreation and lakeshore development. These sites were the Columbia site at River Mile 136.7, the County Line site at River Mile 191.3, and the Normandy site at River Mile 248.6. Feasibility appraisals indicated that the Columbia and Normandy sites should be considered in more detail. The County Line site was less attractive because of apparent foundation problems and was eliminated from further consideration.

A planning report issued by TVA in August 1967 recommended building a dam at Columbia. Further studies proved the feasibility of a dam and reservoir at the Normandy site. The two dam and reservoir projects were then presented as units of the Duck River Project in a 1968 planning report (TVA, 1968). In that report the project was justified on the basis of enhanced employment (29 percent), recreation (25 percent), water supply (16 percent), flood control (7 percent), and water quality control (7 percent). The original construction cost of the Duck River Project was estimated at $73.5 million, of which $50 million was for the Columbia Dam and Reservoir. The benefit-cost ratio for the two-unit project was estimated at 1.2 to 1. For the Columbia unit, the benefit-cost ratio was 1 to 1. Congress began appropriating money for the Duck River Project in December 1969.

In 1971, TVA entered into an agreement with DRDA covering local participation in the overall project. In part, this agreement recognized a TVA commitment to include provisions for certain projected water supply needs in the area in the project design. The DRDA, in turn, committed to repay TVA a portion of the costs of the project. This payment was to consist of proceeds from the sale of specified quantities of water to the cities of Manchester, Tullahoma, Shelbyville, Lewisburg, and Columbia for a period of 50 years. A 5 cent per thousand gallon surcharge for water use has been charged since January 1972 to cover this repayment obligation. The DRDA total repayment obligation was set at $16.2 million, with $5.7 million due ten years after completion of Normandy Dam and the remaining amount of the principal due ten years after completion of Columbia Dam.

Following enactment of NEPA in 1970, TVA issued a draft EIS on the Duck River Project in June 1971. A public hearing on the project was held in August 1971 and a final EIS on the project was published in April 1972 (TVA, 1972). A supplement to the final EIS was issued in June 1974 (TVA, 1974).

Construction of Normandy Dam and Reservoir began in June 1972 and was completed in 1976, at a cost of $37.4 million. Since closure in January 1976, operation of Normandy Dam has reduced a number of downstream floods on agricultural land and at Shelbyville, Tennessee, and has supplemented low flows as necessary to meet water supply and water quality control needs at Shelbyville. In addition, Normandy Dam has assisted in meeting water quality control requirements and provided additional flow for water supply at Columbia.

Construction of the Columbia Dam and Reservoir was begun in August 1973. Original plans for Columbia called for a multipurpose reservoir to serve Maury and Marshall Counties with a summer pool at elevation 630 feet mean sea level and a winter drawdown to elevation 603 feet. The drawdown was to have sufficient flood detention capacity in the reservoir to reduce the flood of record at the city of Columbia to essentially a non-damaging stage. The reservoir also was intended to serve as a water supply source for Maury County, including an extensive industrial complex then located downstream from the city. Water released from Normandy Reservoir for water quality control requirements, together with additional water from storage in Columbia Reservoir, was to be released as necessary to help meet future water quality control and water supply needs in Maury County. Columbia Reservoir, with four times the surface area of Normandy Reservoir during the summer months, was expected to attract a diversity of recreational activity.

Endangered Species Act

Following passage of the Endangered Species Act (in 1973), the USFWS began listing species determined to be either endangered or threatened throughout all or a significant portion of their ranges. In 1976 and 1977, the USFWS added a number of freshwater mussels to the list of endangered species, including five species that had been known to occur in the Duck River. Consultation between TVA and USFWS resulted in a February 1977 Biological Opinion (USFWS, 1977a) which indicated that

completion of the Columbia Dam project would jeopardize the continued existence of two endangered mussels (the birdwing pearlymussel, *Conradilla caelata* [= *Lemiox rimosus*]; and the Cumberland monkeyface pearlymussel, *Quadrula intermedia*).

In 1978, the Office of Management and Budget (OMB) asked TVA to examine alternatives to completing Columbia Reservoir as originally planned that would provide project benefits but would not jeopardize the endangered species. In the report on that study (TVA, 1979), TVA found the two alternatives evaluated (a river development option and a low pool option at elevation 600 feet) to be unacceptable. The description of the project as planned (at elevation 630 feet) outlined a conservation program that could be implemented to benefit the endangered species and other endemic mollusks. As part of a September 1979 revision of the Biological Opinion (USFWS, 1979), the USFWS accepted the conservation program concept and made it a component of a reasonable and prudent alternative that would allow completion of a full-pool Columbia Reservoir. A significant constraint associated with this alternative was that the conservation program for the two endangered species had to be proven successful before the reservoir could be filled. In 1984, TVA and USFWS concluded that the conservation program was not likely to succeed because several established criteria had not been met.

Clean Water Act

TVA requested a Clean Water Act Section 404 permit for Columbia Dam from the USACE in October 1977. The USACE delayed action on the permit because of questions about water quality and endangered species. In December 1979, the Tennessee Commissioner of Public Health certified to the USACE that completion of Columbia Dam would not violate Tennessee water quality standards. The certification was appealed by the Environmental Defense Fund, Inc., and others to the State Water Quality Control Board. In April 1981, the state board issued a decision which found that the construction and operation of Columbia Dam would not violate state water quality standards nor cause any water quality degradation.

In August 1981, USACE issued the Section 404 permit for the Columbia Dam Project. Consistent with the Section 404 permit and the USFWS Biological Opinion, construction resumed on the project; however, the work was limited to roads and bridges which would be useful even if the project was not completed. The approved work was finished in September 1983 and all construction was halted.

Present Status

From 1983 through 1998, the Columbia Dam segment of the Duck River Project remained about 45 percent complete. The concrete portion of the dam was about 92 percent complete and the earth-filled section was about 60 percent complete. Approximately 46 percent of the land required for the reservoir (12,800 of 27,500 acres) had been acquired, and approximately half of the 45 miles of roads affected by the reservoir had been relocated. (However, the major relocation, replacing two Interstate 65 bridges crossing the Duck River, had not been started.) Through fiscal year 1984, some $80 million had been spent on the Columbia Project. When last calculated (in 1986), the total project cost was estimated to be approximately $238 million based on a 1992 completion date. At that time, the remaining cost to complete the project was around $123 million.

Early in 1995, TVA determined that the Columbia Dam Project could not be completed as a dam and reservoir due to the presence of endangered species and lack of present national support for projects of its kind. That decision prompted the preparation of the Land Use EIS to consider the potential environmental effects of various alternative uses for the land, and the preparation of this EIS to evaluate the effects of alternative ways to meet future water needs in the Columbia area. As part of the association between these two documents, TVA agreed that each alternative in the Land Use EIS would include the potential for using the land holdings in the Fountain Creek watershed as part of a water supply project. This EIS includes an evaluation of that alternative.

1.3 DECISIONS TO BE MADE

TVA will use the results of this analysis and EIS to make decisions both now and at pertinent times in the future. Results of the Needs Analysis (discussed in Chapter 2) will allow TVA to determine if various parts of the upper Duck River basin are likely to need additional water some time in the future. If a future need for water does exist in part or all of this basin, results of the EIS will help TVA understand the potential environmental effects of several alternatives being evaluated in detail. Results of the EIS also will help TVA decide which alternatives to recommend to DRDA, water systems in the area, and other local interests as reasonable ways to meet some or all of the projected water needs. If a specific proposal is made to build one or more water supply projects in the upper Duck River basin, the results of this EIS will provide substantial information to help TVA evaluate the potential effects associated with modifying part of the Tennessee River system and the issuance of permits under Section 26a of the TVA Act.

DRDA, area water systems, and a variety of government agencies in the upper part of the Duck River watershed are likely to use the results of this evaluation to help determine which of the alternatives should be pursued to meet any future water needs. At some point in time, those organizations will have to decide how and where to construct any facilities required to provide additional water for their customers.

TDEC, USACE, and USFWS are likely to use the results of this evaluation to clarify the potential environmental effects if and when any of the water supply alternatives are proposed. Information presented in this document should assist these regulatory agencies (among others) in making or evaluating long-term water development plans for the upper Duck River watershed.

1.4 SCOPING PROCESS

Public participation in determining the scope of the Water Supply EIS began on March 9, 1995, when TVA published a Notice of Intent in the *Federal Register* (TVA, 1995a). The Notice indicated that TVA intended to prepare this EIS and invited comments on the scope. The Notice also provided background information on the reason for the EIS and

presented initial ideas about alternatives and issues it was likely to include. In addition, the Notice announced that a public meeting would be held on May 2, 1995, to receive oral comments, and that written comments should be submitted before June 5, 1995.

The Water Supply EIS public meeting was conducted on May 2, 1995, at the Culleoka School in southeastern Maury County. During that meeting, 130 people filled out registration cards. Participants in the meeting had the opportunity to look at a variety of exhibits describing the project and pick up several handouts. After a short overview presentation, the attendees were invited to provide comments in one of five breakout sessions. Facilitators helped people record their comments on flip chart pages and, at times, noted when people endorsed comments which had already been recorded.

A similar Notice of Intent for the Land Use EIS was published in the *Federal Register on* February 25, 1995, and a public meeting about that EIS was conducted at the Culleoka School on April 18, 1995. That meeting, which followed the same format as the Water Supply public meeting, had 119 registered participants.

Another form of public participation on this project involved members of the Columbia Project Steering Committee. TVA invited representatives from federal, state, and local entities to review various aspects of Columbia-related projects and provide their individual perspectives as those projects moved forward. About the time the Notice of Intent was published, Steering Committee members were briefed on the intent of the Water Supply EIS. They offered a number of useful comments.

In addition to providing comments at the public meetings, agencies and members of the public sent a number of letters to TVA about Columbia Dam and these two EIS evaluations. By June 20, 1995, TVA had received a total of 364 letters commenting on these actions. These letters came from three federal agencies, seven state agencies, two municipalities, eight state-level non-governmental agencies, four local-level non-governmental agencies, and 339 individuals. The comments included in those letters were given the same consideration as comments made during the public meetings in setting the scope of this EIS.

Many of the written and oral comments addressed issues related to both the Water Supply EIS and the Land Use EIS. Once TVA realized this combining and mixing had occurred, all of the Columbia-related comments and letters were reviewed to help establish the scope of both documents.

The public identified a number of perspectives and environmental issues to be addressed in the Water Supply EIS. These perspectives and issues were summarized in a draft scoping document which was reviewed by members of the Columbia Projects Steering Committee. Comments from the Committee members were used to prepare a final scoping document that was printed and distributed in October 1995 (TVA, 1995b).

Major Themes in Public Comments

Several recurring thoughts were present in the oral and written comments concerning these two EIS projects. Many of these thoughts were based on different perspectives about completion of Columbia Dam and the need for additional water in the Columbia area. With regard to this EIS, the following thoughts were present:

- The region needs additional water.
- The area does not need additional water, especially if the Columbia wastewater treatment plant, aboveground storage capacity, and pumps are upgraded.
- Columbia Dam should be completed at elevation 630 feet or, if absolutely necessary, at elevation 600 feet.
- Columbia Dam should not be completed at all.
- An impoundment on Fountain Creek might meet area water needs.
- Land acquisition and disposition issues will have to be addressed.
- Conflicts between existing facilities and uses, as well as future needs and resources will have to be covered.
- Personal and family ties to farms and land acquired for the Columbia Reservoir cannot be ignored as this project continues to evolve.
- Resolution of these issues should be thorough, accurate, and completed in a timely manner.

All of these thoughts were considered as the scope of this evaluation was developed and, as appropriate, have been addressed in this EIS.

1.5 ISSUES TO BE ADDRESSED IN DETAIL

While this EIS includes information on a wide variety of subject areas, only a few subjects are focus points within the document. Discussions among TVA staff and various comments from the local water systems, other agencies, and individuals suggests that the following issues should be addressed in detail in this EIS:

Water Supply - The primary focus of this EIS is the future water supply needs in the Columbia area. As part of this evaluation, a needs analysis has been conducted to determine if, when, and how much water would be required to meet projected residential, commercial, and industrial water needs in the middle reach of the Duck River watershed throughout the next 50 years. The results of the needs analysis (discussed in Chapter 2) form the basis for completing the remainder of this evaluation.

Water Quality - Good water quality is important to the human population in this area because the Duck River is the source of several area water supplies and the potential focus of substantial recreational development. The quality of water in the Duck River system also is important to the survival of aquatic life in the area, including several endangered species.

Socioeconomic Effects - An adequate water supply is essential for the continued viability and economic growth of the region. This Water Supply EIS also should address the socioeconomic effects of each alternative approach to meeting the additional water supply needs.

Recreation - The impacts of each alternative on recreation and recreational opportunities should be identified and compared, in part because much local recreation is focused on the river.

Archaeological, Cultural, and Historic Resources - The Duck River watershed contains an abundance of prehistoric and historic cultural resources. Federal agencies are required to consider the impacts of various alternatives on these important resources.

Endangered Species - Several endangered or threatened species are known to occur in the counties which could be affected by water supply development for the Columbia area. Federal agencies are required to determine the possible effects of their activities on listed species and to protect and promote the recovery of listed species whenever possible.

1.6 STUDY AREA

The geographic focus of this evaluation is Columbia, Tennessee, and the surrounding Maury/southern Williamson County Water Service Area (Figure 1); however, a wider geographic area has been included in this evaluation to cover several ways of meeting the anticipated water need. Many of the resource areas covered in this EIS include all of the Duck River watershed from the Hickman/Maury county line (on the west) upstream to Normandy Reservoir in Coffee County (on the east). The northern and southern boundaries of this study area typically are the limits of the Duck River watershed, extended to include the southern part of Williamson County served as a part of the Maury/southern Williamson County Water Service Area, and two embayments on Tims Ford Reservoir (in Moore County) which are being evaluated as a possible water supply source. The geographic scope of this study area is illustrated on Figure 1. The reach of the Duck River included in this study area extends from approximately River Mile 100, at the Hickman County Line, upstream to the headwaters of Normandy Reservoir, River Mile 267.

1.7 RELATED DOCUMENTS

Several documents include information pertinent to the subjects covered in this EIS. These documents include:

- 1968 TVA Duck River Project planning report (TVA, 1968).
- 1972 Final EIS on the Duck River Project (TVA, 1972).
- 1999 Final EIS on alternative uses of the Columbia Project lands (TVA, 1999).
- U. S. Geological Survey report on future water demand in the upper Duck River basin (USGS, 1996).

- U. S. Army Corps of Engineers report on hydrology and hydraulics of a possible Fountain Creek reservoir (USACE, 1997a).
- U. S. Army Corps of Engineers report on geologic conditions in the area of the possible Fountain Creek Dam (USACE, 1997b).
- TVA Water Supply Needs Analysis for part of the upper Duck River watershed (TVA, 1998a).
- TVA and TDEC draft EIS on the use of land surrounding Tims Ford Reservoir (TVA and TDEC, 1999).

Pertinent information in these documents is incorporated by reference in sections throughout this EIS. Full citations for each of these documents is provided in Section 6.3, References.

1.8 REVIEW AND CONSULTATION REQUIREMENTS

A number of federal, state, and local laws and regulations would apply to the construction and operation of any of the action alternatives considered in this EIS. These laws and regulations are intended to provide safeguards against various types of impacts to the environment and other resources or activities in the area. Most of these laws and regulations would apply whether TVA, a state agency, a private company, or an individual was proposing a specific development action; however, the nature of the reviews and restrictions could vary depending on the kind of action that was being proposed and, at times, the type of agency proposing to build and operate the project. Many of these restrictions also include opportunities for public review and comment.

National Environmental Policy Act (NEPA)

NEPA, 42 U.S.C. 4321 et seq., requires all federal agencies, including TVA, to consider the potential environmental impacts of proposed actions before deciding whether to proceed. Under the TVA procedures for implementing NEPA and the regulations promulgated by the Council on Environmental Quality, there are three levels of environmental review: categorical exclusions, environmental assessments, and environmental impact statements (EIS). The kind of action and significance of the potential impacts dictate which level of review is to be used. Analyses become more detailed and public involvement more

extensive as an agency moves from a review for a categorical exclusion to an environmental impact statement.

This programmatic EIS includes only general evaluations of the potential environmental effects associated with the action alternatives. These evaluations are based on a variety of assumptions about the likely components of each project and assume that environmental, regulatory, and economic conditions would remain unchanged until each project was constructed. If and when a federal agency participates in building one or more of these alternatives, a subsequent NEPA document would have to be prepared. That categorical exclusion, environmental assessment, or EIS document would confirm or revise the potential environmental effects of the specific activities that were, then, proposed to be built and operated.

Construction Permit Reviews

The state of Tennessee requires potential dischargers of stormwater to obtain a National Pollutant Discharge Elimination System (NPDES) storm water runoff permit before site preparation and construction activities can commence. NPDES permit limits are set to protect water quality and water uses that have been identified by the state for stream reaches. The Environmental Protection Agency (EPA) has an opportunity to review and comment on proposed NPDES permits, as does the general public.

Under each of the action alternatives, appropriate NPDES stormwater permits would have to be obtained once specific components of the projects were developed. Compliance with NPDES construction and operational permit conditions would be required and monitored by the state.

Protection of Wetlands and Floodplains

Because of their biological value, wetlands receive special protection under federal law. Before most wetlands can be disturbed, a permit must be obtained from the USACE under Section 404 of the Clean Water Act. The EPA and the public typically have opportunities to review and comment on the proposed permits. As part of the permitting process, Tennessee would be asked to determine whether the proposed action would violate state water quality standards. Under Executive Order No.

11990 (Protection of Wetlands), federal agencies are required to avoid impacting wetlands with new construction to the extent practicable and to otherwise minimize potential wetland impacts. Alteration of streams and wetlands are controlled at the state level by the Tennessee Aquatic Resource Alteration Permit program.

Under Executive Order No. 11988 (Floodplain Management), federal agencies are directed to avoid occupying or modifying floodplains to the extent practicable and to otherwise minimize potential impacts to floodplain values. At the local level, Maury, Marshall, and Moore counties, and Columbia and Shelbyville have adopted regulations that control development in floodplains.

This EIS includes general evaluations of the action alternatives on wetlands and floodplains based on present assumptions about the likely components of each project. If and when one or more of these water supply alternatives are proposed to be built, more detailed reviews of the potential impacts on wetlands and floodplains would have to be conducted in accordance with regulations in effect at that time.

Cultural Resources

A number of federal laws protect cultural and archaeological resources, including the National Historic Preservation Act and the Archaeological Resources Protective Act. Before disturbing cultural and archaeological resources that have historical significance, TVA and other federal agencies are required to consult with the State Historic Preservation Officer and, in some circumstances, the Federal Advisory Council on Historic Preservation. The state of Tennessee also has adopted archaeological resource protection requirements for lands under the control of the state or local governments and for the excavation of the remains of Native Americans. While very general evaluations of the potential for adverse effects on cultural resources are presented in this EIS, more detailed review of the specific locations which could be disturbed would have to be conducted when one or more of the action alternatives was proposed to be built.

Endangered Species

Under the Endangered Species Act, 16 U.S.C. 1536 et. seq., federal agencies are to ensure that their actions are not likely to jeopardize the

continued existence of any endangered or threatened species or adversely modify any critical habitat of such sensitive species. If a proposed action may affect an endangered or threatened species, the agency must consult with the USFWS and obtain that agency's determination of the potential for impacting these species. In addition to the responsibilities of federal agencies, the Endangered Species Act prohibits the "taking" (harming) of listed species by any person. The state of Tennessee also has established regulatory protections for state-listed species which would apply to private developments.

This EIS identifies the federal- and state-listed endangered and threatened species which are known or are considered likely to occur in this general project area. The EIS also includes general evaluations of the potential effects of the action alternatives on these species. These evaluations would have to be reviewed when one or more of the action alternatives were further defined and proposed to be built. The evaluations also would have to be focused on the species protected at the federal and state level at that time and comply with the laws and regulations as then in existence.

Farmland Protection

Under the Farmland Protection Policy Act, federal agencies are required to identify and take into account potential adverse effects of a proposed action on farmlands. In addition, the state of Tennessee has enacted the Agricultural District and Farmland Preservation Act, TCA §§43-34-101 - 108 (1995), which provides limited protection of farmlands that have been specially designated under the act. This EIS includes general evaluations of the likely effects of the action alternatives on farmlands; however, those results would have to be updated or revised when one or more of the action alternatives was proposed to be built.

Environmental Justice

Executive Order (EO 12898) directs some federal agencies to consider whether the effects of their actions would cause a disproportionate burden on the health or environment of any segment of the human population. While TVA is not required to comply with Executive Order 12898, this EIS includes a discussion about where low income and minority groups live in the general project area and an evaluation of the likely effects of the alternatives on those segments of the population.

That evaluation probably would be reviewed and updated when one or more of the action alternatives were proposed to be built.

Other Review and Permit Processes

A number of other review and permit processes may be pertinent to one or more of the action alternatives, depending on the nature of the specific development proposals or their potential environmental effects. These include reviews under or involving:

- structures in or along the Duck River or its tributaries (River and Harbor Act and the TVA Act, Section 26a),
- the federal Safe Drinking Water Act and Tennessee drinking water regulations,
- the federal Clean Air Act,
- the federal Toxic Substances Control Act,
- the federal Insecticide, Fungicide, and Rodenticide Act,
- the federal Comprehensive Environmental Response, Compensation, and Liability Act,
- solid and hazardous waste laws and regulations, and
- city and county zoning regulations.

Appropriate review and compliance actions might be required under these and other pertinent federal, state, and local laws and regulations before one or more water supply projects could be constructed and/or operated.

1.9 EIS OVERVIEW

In many ways, this document follows a fairly standard EIS format. Chapter 2 is a somewhat atypical part of an EIS because it presents a summary of the information included in the water supply needs analysis for the upper Duck River basin. Chapter 3 indicates how the water supply alternatives were developed, describes each alternative evaluated in detail, and presents a summary of their potential environmental effects. Chapter 4 is a systematic description of the existing environmental features within the study area, and Chapter 5 is a parallel description of the potential effects on those features which could occur if each alternative was built. Chapter 6 provides supporting information, primarily the list of preparers of this text, a glossary of terms, and the references used in this evaluation.

Five appendices follow the EIS text. The first three include detailed information about water quality (Appendix A), aquatic life (Appendix B), and endangered and threatened species (Appendix C) not available from other sources. The fourth appendix (Appendix D) presents all of the public and agency comments that were received concerning the draft EIS and TVA responses to those comments. The final appendix (Appendix E) includes copies of letters from the U.S. Fish and Wildlife Service and the Tennessee Historic Preservation Office indicating that preparation of this programmatic EIS has complied with requirements of the Endangered Species Act and the National Historic Preservation Act.